DOCUMENT RESUME

ED 415 978 PS 026 162

AUTHOR Weinberg, Serena; Lazier, Raun; Shivery, Amy; Chambliss, Catherine

TITLE A Comparison of the Development of Infants as a Function of Hours Spent in Day Care.

PUB DATE 1998-00-00

NOTE 27p.

PUB TYPE Reports - Research (143)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS Child Caregivers; *Child Development; Day Care; *Day Care Effects; Full Day Half Day Schedules; Individual Development; *Infants; *Sex Differences

ABSTRACT

This study examined the development of infants in day care and explored how their development varied as a function of hours spent in day care. Thirty-one day care providers completed a competence rating scale for 3 of the infants in their class. Results indicated no significant correlation between the number of hours an infant spends in day care and the infants' competence score. When an ANOVA was performed on the data, infant girls attending day care for 1-45 hours a week had a higher mean competence score than boys attending the same number of hours. Boys in day care for more than 45 hours a week had higher competence scores than girls in day care more than 45 hours. Based on the findings, it is suggested that full-time day care may offer advantages to boys because it provides a more stable environment and more consistent routines than part-time day care. (Contains 10 references and 7 tables.) (JPB)

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Serena Weinberg, Raun Lazier
Amy Shivery, and Catherine Chambliss, Ph.D.

Ursinus College

1998

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Abstract

The present study examined the development of infants in day care and explored how their development varied as a function of hours spent in day care. Thirty-one day care providers were asked to complete a competence rating scale for 3 of the infants in their class. The rating scale consisted of 4-point Likert items rating motor skills, communication, social skills, positive mood, irritability, and fearfulness. Directionally adjusted scores on those items were totalled, yielding a summary competence score for all 93 infants.

It was hypothesized that infants in day care full time would rank higher on the measures of development and lower in irritability and fear. A study done by Roggman on infant day care and attachment showed that babies in part-time day care showed more insecure attachment, which is measured by the child's expression of anxiety, than infants in full-time day care (1994).

No significant correlation was found between the number of hours an infant spends in day care and the infants' competence score. However, when a 2x3 ANOVA (sex x day care duration) was performed, significant group differences in

infants' competence emerged. Females attending day care for 1-45 hours a week had a higher mean competence scores than males attending for the same number of hours. However, males in day care for more than 45 hours a week had higher competence scores than females in day care more than 45 hours.

Previous research provides some possible explanations for these results. Studies with infants show that boys have a lower tolerance for stimuli, stress, and unpredictable events, especially if they are unable to control the aversive stimuli (Morisset et al, 1995). Full time day care may offer advantages to boys because it offers a more stable environment and consistent routines than part time day care.

Infant Development: A Function of Hours
Spent In Day Care

More than two-thirds of today's mothers are employed outside of the home. This figure includes more than 55% of mothers of children less than 1 year old, suggesting that many infants are taken care of by child care providers (U.S. Bureau of Census, 1992). The first two years of life are crucial to biological and social development of a child. It is especially important that a child is in a nurturing and supportive environment at this time. Few studies have been done exploring the effects of day care on infant development. While early studies on the effects of day care found no effects or positive effects, more recent research has begun to discover negative consequences from low quality day care (Zigler et. al, 1989). Other factors influencing the effects that day care has on infants are gender and hours spent in day care.

In addition to these findings, Belsky (1986) concluded that more than 20 hours per week spent in day care during the infant's first year was a "risk factor" for the development of insecure attachments with parents. In particular, infants with early and extended day care

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experiences were more likely to avoid and ignore their mothers when observed in the Strange Situation. Insecure attachment is a result of a young infant's ill preparation to cope psychologically with extended separations from their mother while attachments are still developing in the first year.(Belsky 1986)

Another study done by Belsky (1991) examined the level of distress and object play of infants classified as insecure-avoidant in their attachments to their mothers. These infants either experienced less than 20 or 20 or more hours per week of non-parental care in the first year of life. The results of this study showed that infants with extensive day care histories had higher distress scores and lower object play scores than those infants with limited day care experience.(Belsky 1991)

Critics of Belsky have said that

> the Strange Situation may not be a valid indication of attachment in infants. When attachment is measured in the Strange Situation, day care infants may behave differently- that is seeming blasé about their mothers comings and goings- because of their prior experience of separation and union, not because of insecure attachment.(Berger; Thompson 1996)

Whether concerns about infant day care prove well-founded or not, there is still a need for high quality day care in the U.S. Belsky (1990) has also noted: "it is

unknown whether infant day care experience is a cause or just a correlate of insecurity, aggression and noncompliance". Taking this into consideration it would be a mistake to conclude that day care is a "risk factor". Developmental research has established that high quality day care in the preschool years does not carry risks, and in many cases serves to enhance a child's development (Berger; Thompson 1996). In Sweden, where high quality day care is readily available, Anderson (1989) & Field (1991) found that infants who experienced high amounts of high quality day care showed more positive long-term outcomes than children without such an experience. In response to Anderson's and Field's finding Howes & Hamilton (1992) suggested that, "one reason may be that in quality day care centers, infants secure attachments to their professional caregivers."

Additional research supporting the positive effects of infant day care has shown that day care children are more independent, self-confident, and out-going as well as more helpful and cooperative with adults and peers (Clarke-Stewart,1991). The results of Project CARE are "clearly suggestive of the role that community day care can have in influencing child behavior and indicate that attendance at a quality community day care for at least a year may enhance

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cognitive development of children from low socioeconomic backgrounds"(Wasik et al., 1990).

The purpose of this study was to examine whether or not hours in day care affected infant development. It was hypothesized that a more positive effect on development would be found in infants who spent the most hours in day care. Infant day care providers were asked to complete a developmental competence scale on three infants. The scale assessed motor skills, communication, social skills, positive mood, irritability, and fearfulness. Motor skills were defined as the child's "capacity for movement" (Etaugh, Rathus, 1995). Communication was considered to be both verbal and gestural, including facial expressions, body movements, cries, and babbling. Social skills were determined by the extent to which the child was able to interact appropriately with other children and adults. Positive mood was defined as a measure of contentment and satisfaction in the child. Irritability was determined by how easily would become upset in different situations. Fearfulness was defined by the child's reaction to "loud noises, falling, sudden movement, and strangers" (Etaugh & Rathus, 1995). The developmental summary scores were compared according to hours spent in day care.

Method

Subjects

A total of 93 infants (43 male, 45 female, and 5 unknown) in day care were evaluated by 31 female day care providers, who volunteered to participate in the study. The subjects were obtained from a suburban area in the northeast.

Materials

The developmental competence survey was composed of eleven questions. The survey asked age, sex, number of months in day care, average hours spent per week in day care, and how many months the worker had been providing day care. The survey also asked six Likert-type questions on a scale of 1-4, which addressed development. The scale rated the children on motor skills, communication, social skills, positive mood, irritability and fearfulness. The choices given for the Likert- type questions were "extremely below average", "somewhat below average", "somewhat above average", and "extremely above average".

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Procedure

Infant day care providers were asked to complete developmental competence surveys for three of the infants in their care. The infants were separated into three groups according to the number of hours they spent in day care each week (low = less than 40; medium = 40-45; high = greater than 45 hours per week).

Results

A composite assessment of developmental level was obtained for each infant rated, by totalling the directionally adjusted scores on the six dimensions measured by the survey.

No significant correlation was found between the number of hours an infant spends in day care and the infants' composite developmental score. However, when a 2x3 ANOVA (sex x weekly day care duration) was performed, significant group differences in infants' competence levels emerged. The female infants who attended day care for 1-45 hours a week (from the low and medium duration groups) had a higher mean competence score than males attending for the same number of hours. However, males in day care for more than 45 hours a week (those in the high duration group) had higher competence scores than their female counterparts who were also in day care for more than 45 hours.

When the mean development scores for infants were compared based on sex of the child and number of hours spent in day care (labeled TRI variable), girls in day care 1-39 hours per week and 40-45 hours per week had higher development scores than boys in day care more than 45 hours a week. However the opposite was true for infants in day care over 45 hours a week. Females in day care more than 45 hours a week had a mean development score of 13.5, while boys in this category had a mean development score of 16. (See table 1)

Similar results were found when the mean scores for each dependent variable when analyzed as a function of sex and TRI. (See Tables 2 - 8). For the variable motor skills, boys scored equal to or lower than the girls for those in day care 1-45 hours. However, among the infants in day care more than 45 hours per week, the mean boys' score was 3.4 while the girls' was 1.8.

The mean scores on the communication variable were examined and the data was consistent with the results previously mentioned. Again, girls in day care 1-45 hours per week scored higher than boys for communication.

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However, males in day care more than 45 hours a week scored higher than girls who attend extensive day care (see table 3).

When the variable fear was analyzed as a function of sex and hours in day care, females in the 1-39 hours group were found to display slightly more fear than males in that category (See Table 4). Among the infants in day care more than 45 per week, the females had a mean score of 2.6 while the males only had a mean of 1.6 for fear rating.

These results were further analyzed by performing a 2 x 3 ANOVA (sex x duration in day care x score) on each dependent variable. Only one significant main effect was found for sex by hours in day care by social skills at the .005 level.

The ANOVAs also showed significant 2-way interactions for all the dependent variables except irritability and social skills. The interaction of communication by hours in day care by sex was significant at the .000 level. Also, the interaction of mean summary score by hours spent in day care by sex was significant at the .16 level. (See Table 9).

Discussion

The major findings in this study suggested that female infants have a higher overall developmental competence score than male infants. These results also suggest that, overall female infants respond better developmentally to fewer than 46 hours of day care than males. However, males who were exposed to more than 45 hours of day care scored higher on the developmental competence scales than girls attending day care for that amount of time. These results suggest that male infants would benefit more than female infants from extended hours(45 hours or more) in daycare and that female infant development will not be greatly improved by extended hours in day care.

Studies on infant development show that male infants do not react well to ccnstant changes in their environment, and they function best when put on a schedule, where as, female infants show higher adaptability to new situations. This could be one reason why females attending 1- 45 hours of day care scored higher in developmental competence scales than males, while males scored higher among the 45 hours or more group. Less than 45 hours per week in day care may be

unpredictable and not scheduled enough for males, while females may be more adaptable to the changes that fewer hours in day care brings. The decrease in the overall developmental score for females that spend more than 45 hours in day care could be attributed to the possibility that female infants get bored by routine situations and extended time in day care.

In the case of motor development, the dramatic increase in the developmental motor skills of males that spend more than 45 hours in day care may be because males function better in familiar and routine situation and need more stimulation than female infants. These extra hours in day care may translate into extra attention from the day care providers. This can cause male infants to feel more comfortable with daycare environment. Female infants still showed greater overall development of motors skills than males.

The findings for the communication variable were consistent with previous research done on infant and toddler language development. Females infants showed greater overall communication development than male infants. Male infants that were in day care more than 45 hours showed higher developmental competence scores than females in day care for

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more than 45 hours. This finding has the same implication as the results for the motor skills variable. Male infant development is positively correlated with hours in daycare.

Some reasons that females may show greater communication development may be due to the socialization of males and females in our society. Sex- roles stereotyping leads to the differential treatment of male and female infants by day care providers, parents, and guardians. This differential treatment can allow females to feel more at ease when verbally expressing themselves and discourage male infants from fully verbally expressing themselves.

The results from the fear component of the survey are that males who were in day care more than 45 hours a week scored lower on the fear variable than females. This could be because the male infants were in a familiar situation due to the extended hours spent in day care. Female infants might have been bored by the extended hours in day care and therefore reacted more negatively than males to falling objects and sudden noises.

The high development of social skill for female infants can possibly be linked to their high communication scores and motor scores. Communication and motor skills are related to social skills. There is a positive correlation between

social skills and hours spent in day care for males because male infants are more receptive to increase stimulation and familiar situations than their female counterparts.

Female infants have higher overall positive mood scores than males infants. Male infants show a greater increase in their positive mood score in relation to the hours they spend in daycare. This is not surprising because studies show that females infants have higher communication skills and are more adaptable to different situations than male infants.

Another variable that could have affected the present study is the day care providers' perceptions of the gender differences. How the day care provider rates the infants, Could be dependent upon her/his perception of child sex roles and how the infant should interact.

Further research on infant development should focus on finding out why males and females respond differently on developmental measures according to the hours they spend in day care. By finding why females respond better to less hour of day care than males do, changes can be implemented into day care programs so that both males and females will score high on developmental measures regardless of the hours

they spend in day care. Ultimately, this will maximize the quality of infant day care.

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Infant Day Care Quality Project

Child's age in months _____ Sex M F Number of months in your infant day care_____

Number of hours child usually spends in infant day care per week (currently) _____

Please rate the child on the following scales by comparing them with most children their age:

1. Motor skills:	extremely below average	somewhat below average	somewhat above average	extremely above average
2. Communication:	extremely below average	somewhat below average	somewhat above average	extremely above average
3. Social Skills:	extremely below average	somewhat below average	somewhat above average	extremely above average
4. Positive mood:	extremely below average	somewhat below average	somewhat above average	extremely above average
5. Irritability:	extremely below average	somewhat below average	somewhat above average	extremely above average
6. Fearfulness:	extremely below average	somewhat below average	somewhat above average	extremely above average

How many months have you provided infant day care ? _____

TABLE 1

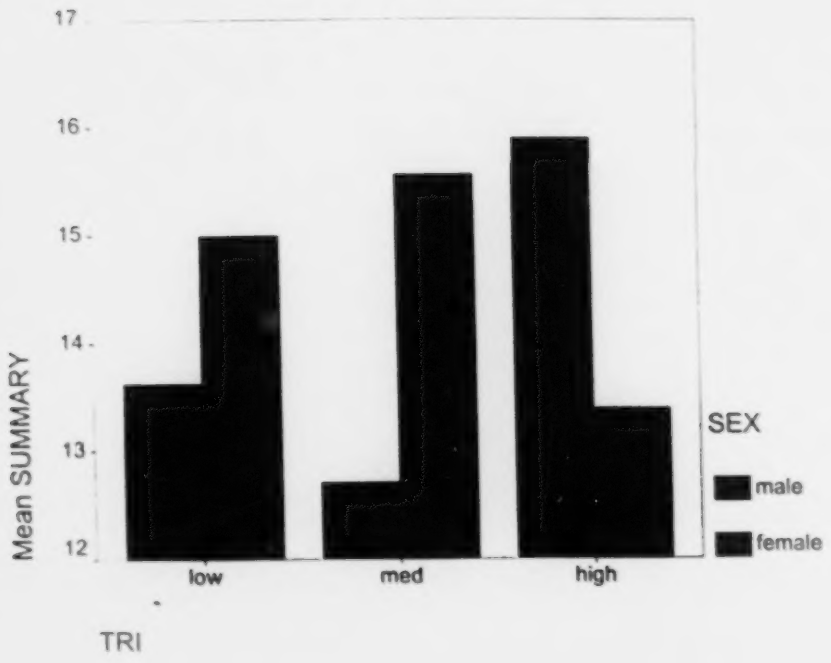


TABLE 2

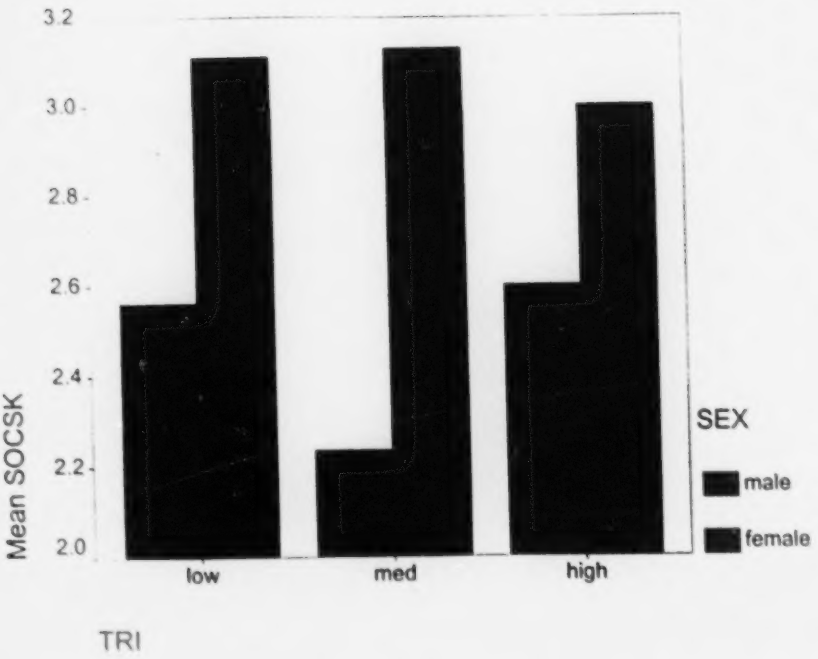
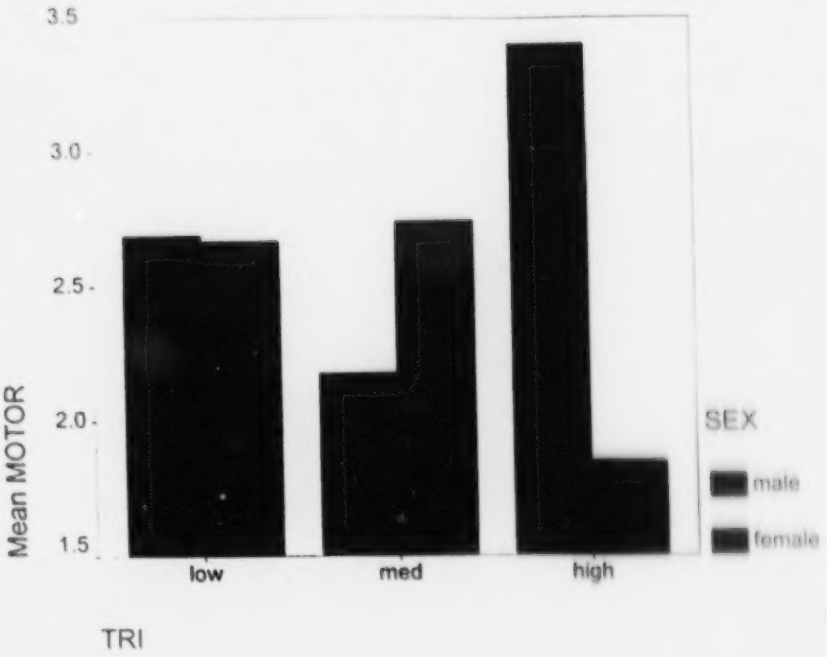


TABLE 3



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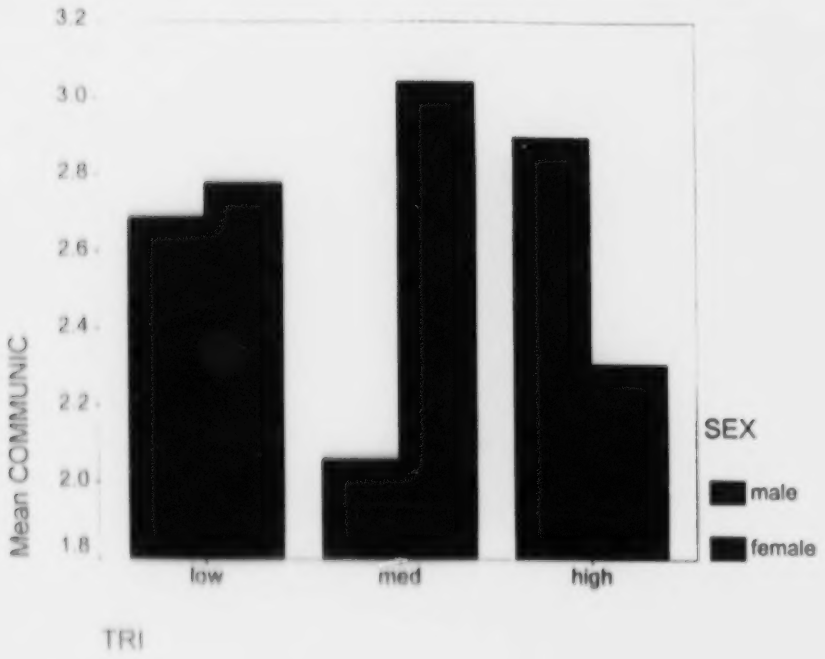
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
Mean COMMUNIC
low
med
high
TRI
SEX
male
female

TABLE 5

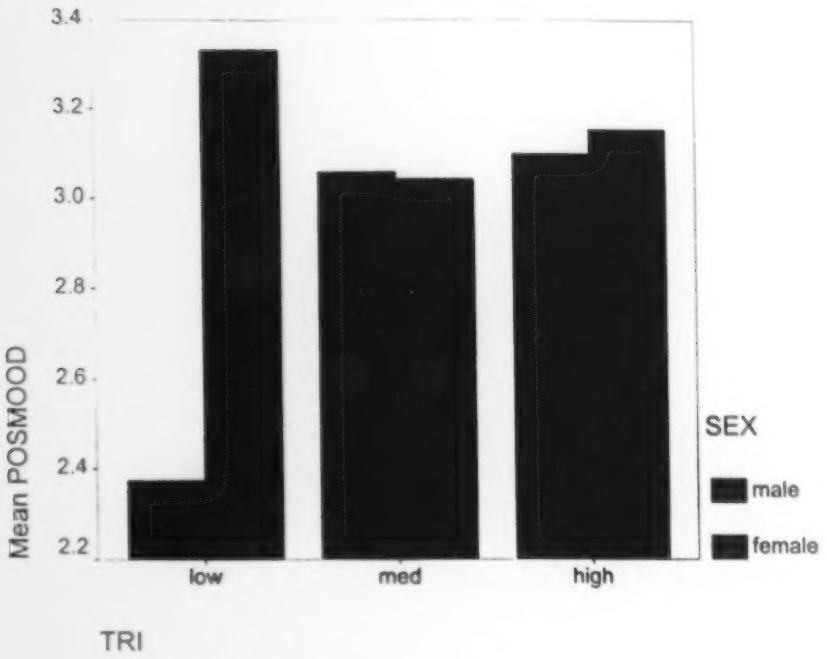

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TABLE 7

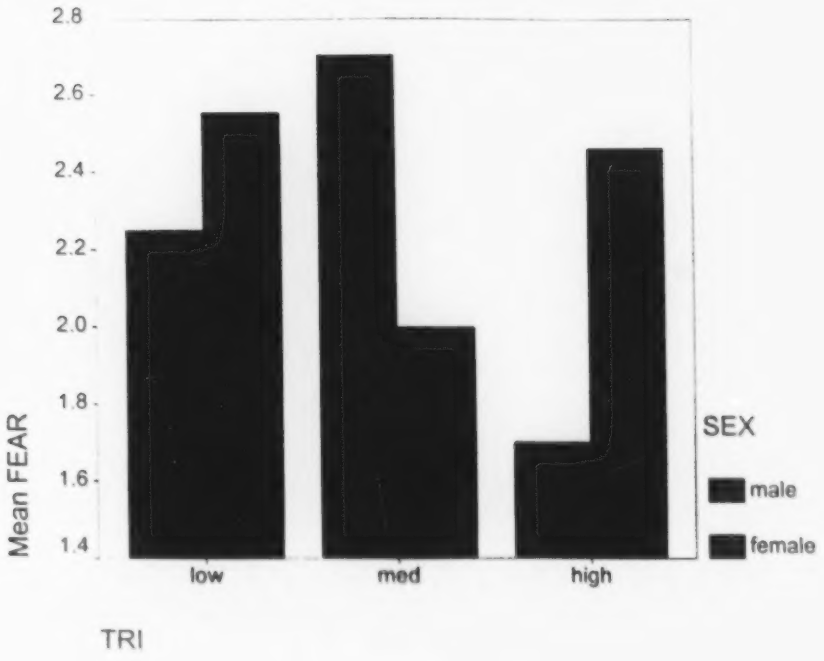
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
Mean FEAR
low
med
high
TRI
SEX
male
female

TABLE E

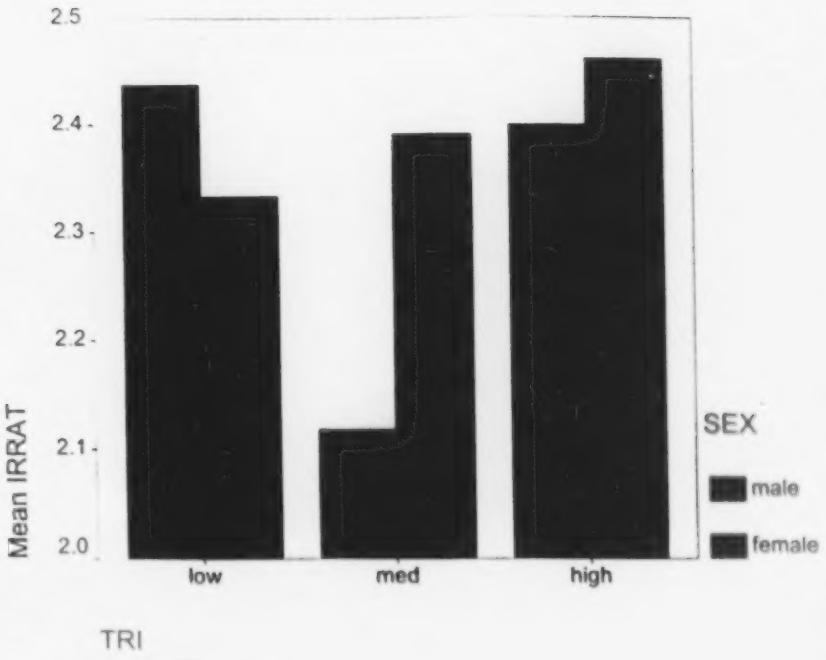

Table 9

	Main Effects	2 Way interactions
Summary	.577	.016
Social Skills	.005	.014
Motor Skills	.711	.000
Communication	.180	.000
Positive Mood	.102	.051
Fear	.855	.012
Irritability	.813	.705

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